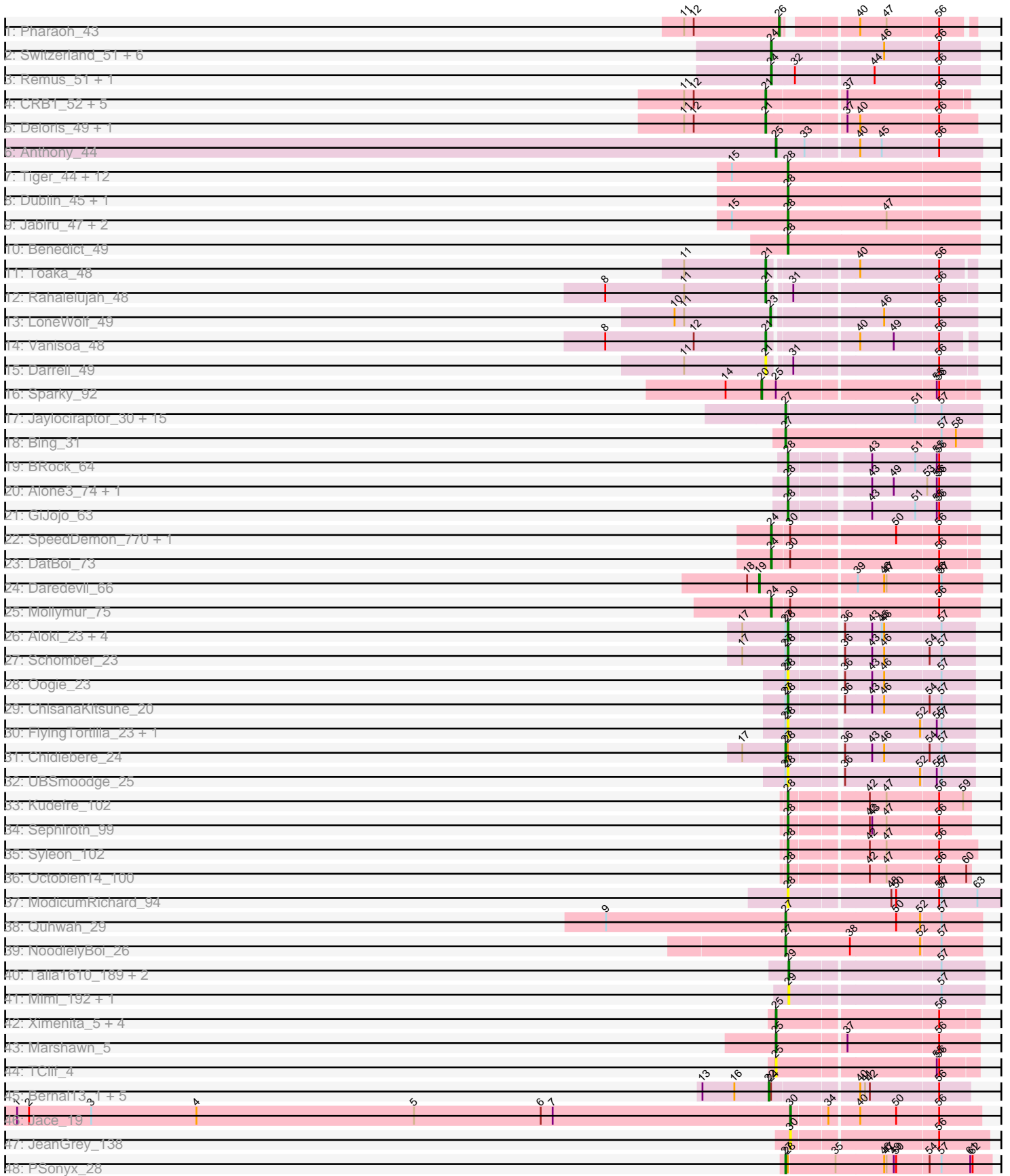


Pham 157732



Note: Tracks are now grouped by subcluster and scaled. Switching in subcluster is indicated by changes in track color. Track scale is now set by default to display the region 30 bp upstream of start 1 to 30 bp downstream of the last possible start. If this default region is judged to be packed too tightly with annotated starts, the track will be further scaled to only show that region of the ORF with annotated starts. This action will be indicated by adding "Zoomed" to the title. For starts, yellow indicates the location of called starts comprised solely of Glimmer/GeneMark auto-annotations, green indicates the location of called starts with at least 1 manual gene annotation.

## Pham 157732 Report

This analysis was run 04/13/24 on database version 558.

Pham number 157732 has 110 members, 17 are drafts.

Phages represented in each track:

- Track 1 : Pharaoh\_43
- Track 2 : Switzerland\_51, Rosalind\_50, Anon\_46, Waits\_51, MinecraftSteve\_52, Battleship\_52, JSwag\_50
- Track 3 : Remus\_51, Strosahl\_51
- Track 4 : CRB1\_52, 20ES\_51, AN3\_51, VA6\_49, First\_0050, LadyBird\_53
- Track 5 : Deloris\_49, BengiVuitton\_50
- Track 6 : Anthony\_44
- Track 7 : Tiger\_44, Midas2\_45, MarysWell\_45, PetterN\_50, Jovo\_45, Aragog\_44, UnionJack\_47, Conspiracy\_45, AgentM\_44, Cuco\_45, PickleBack\_45, Lev2\_45, ForGetIt\_45
- Track 8 : Dublin\_45, Theia\_44
- Track 9 : Jabiru\_47, Chadwick\_49, Scorpia\_50
- Track 10 : Benedict\_49
- Track 11 : Toaka\_48
- Track 12 : Rahalelujah\_48
- Track 13 : LoneWolf\_49
- Track 14 : Vanisoa\_48
- Track 15 : Darrell\_49
- Track 16 : Sparky\_92
- Track 17 : Jaylociraptor\_30, Hoshi\_30, TaidaOne\_30, Maya\_30, Meibysrarus\_30, Namu\_30, Rima\_30, Esketit\_30, Spectropatronm\_30, IceWarrior\_30, FidgetOrca\_30, TonyStarch\_30, CherryBlossom\_30, TieDye\_29, Indigenous\_30, OlympicHelado\_30
- Track 18 : Bing\_31
- Track 19 : BRock\_64
- Track 20 : Alone3\_74, LuckySocke\_72
- Track 21 : GiJojo\_63
- Track 22 : SpeedDemon\_770, Bantam\_75
- Track 23 : DatBoi\_73
- Track 24 : Daredevil\_66
- Track 25 : Mollymur\_75
- Track 26 : Alok\_23, Hanem\_24, Gray\_24, Kabocha\_25, Pakusa\_23
- Track 27 : Schomber\_23
- Track 28 : Oogie\_23
- Track 29 : ChisanaKitsune\_20
- Track 30 : FlyingTortilla\_23, ScarletRaider\_23
- Track 31 : Chidiebere\_24
- Track 32 : UBSmoodge\_25

- Track 33 : Kudefre\_102
- Track 34 : Sephiroth\_99
- Track 35 : Syleon\_102
- Track 36 : Octobien14\_100
- Track 37 : ModicumRichard\_94
- Track 38 : Quhwah\_29
- Track 39 : NoodlelyBoi\_26
- Track 40 : Talia1610\_189, Bloom\_190, Racecar\_187
- Track 41 : Mimi\_192, Patbob\_186
- Track 42 : Ximenita\_5, Shadow1\_3, Krueger\_4, Syra333\_4, Sunflower1121\_3
- Track 43 : Marshawn\_5
- Track 44 : TClif\_4
- Track 45 : Bernal13\_1, Nairb\_1, ZenTime222\_1, Ibrahim\_1, RonRayGun\_1, Whitty\_1
- Track 46 : Jace\_19
- Track 47 : JeanGrey\_138
- Track 48 : PSonyx\_28

***Summary of Final Annotations (See graph section above for start numbers):***

The start number called the most often in the published annotations is 28, it was called in 32 of the 93 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AgentM\_44, Aloki\_23, Alone3\_74, Aragog\_44, BRock\_64, Benedict\_49, Chadwick\_49, ChisanaKitsune\_20, Conspiracy\_45, Cuco\_45, Dublin\_45, FlyingTortilla\_23, ForGetIt\_45, GiJojo\_63, Gray\_24, Hanem\_24, Jabiru\_47, Jovo\_45, Kabocha\_25, Kudefre\_102, Lev2\_45, LuckySocke\_72, MarysWell\_45, Midas2\_45, ModicumRichard\_94, Octobien14\_100, Oogie\_23, Pakusa\_23, PetterN\_50, PickleBack\_45, ScarletRaider\_23, Schomber\_23, Scorpia\_50, Sephiroth\_99, Syleon\_102, Theia\_44, Tiger\_44, UBSmoodge\_25, UnionJack\_47,

Genes that have the "Most Annotated" start but do not call it:

- Chidiebere\_24, PSonyx\_28,

Genes that do not have the "Most Annotated" start:

- 20ES\_51, AN3\_51, Anon\_46, Anthony\_44, Bantam\_75, Battleship\_52, BengiVuitton\_50, Bernal13\_1, Bing\_31, Bloom\_190, CRB1\_52, CherryBlossom\_30, Daredevil\_66, Darrell\_49, DatBoi\_73, Deloris\_49, Esketit\_30, FidgetOrca\_30, First\_0050, Hoshi\_30, Ibrahim\_1, IceWarrior\_30, Indigenous\_30, JSwag\_50, Jace\_19, Jaylociraptor\_30, JeanGrey\_138, Krueger\_4, LadyBird\_53, LoneWolf\_49, Marshawn\_5, Maya\_30, Meibysrarus\_30, Mimi\_192, MinecraftSteve\_52, Mollymur\_75, Nairb\_1, Namu\_30, NoodlelyBoi\_26, OlympicHelado\_30, Patbob\_186, Pharaoh\_43, Quhwah\_29, Racecar\_187, Rahalelujah\_48, Remus\_51, Rima\_30, RonRayGun\_1, Rosalind\_50, Shadow1\_3, Sparky\_92, Spectropatronm\_30, SpeedDemon\_770, Strosahl\_51, Sunflower1121\_3, Switzerland\_51, Syra333\_4, TClif\_4, TaidaOne\_30, Talia1610\_189, TieDye\_29, Toaka\_48, TonyStarch\_30, VA6\_49, Vanisoa\_48, Waits\_51, Whitty\_1, Ximenita\_5, ZenTime222\_1,

**Summary by start number:**

Start 19:

- Found in 1 of 110 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 1 of 93
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Daredevil\_66 (DL),

Start 20:

- Found in 1 of 110 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 1 of 93
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Sparky\_92 (AF),

Start 21:

- Found in 12 of 110 ( 10.9% ) of genes in pham
- Manual Annotations of this start: 8 of 93
- Called 100.0% of time when present
- Phage (with cluster) where this start called: 20ES\_51 (A2), AN3\_51 (A2), BengiVuitton\_50 (A2), CRB1\_52 (A2), Darrell\_49 (A9), Deloris\_49 (A2), First\_0050 (A2), LadyBird\_53 (A2), Rahalelujah\_48 (A9), Toaka\_48 (A9), VA6\_49 (A2), Vanisoa\_48 (A9),

Start 22:

- Found in 6 of 110 ( 5.5% ) of genes in pham
- Manual Annotations of this start: 6 of 93
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bernal13\_1 (T), Ibrahim\_1 (T), Nairb\_1 (T), RonRayGun\_1 (T), Whitty\_1 (T), ZenTime222\_1 (T),

Start 23:

- Found in 1 of 110 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 1 of 93
- Called 100.0% of time when present
- Phage (with cluster) where this start called: LoneWolf\_49 (A9),

Start 24:

- Found in 19 of 110 ( 17.3% ) of genes in pham
- Manual Annotations of this start: 13 of 93
- Called 68.4% of time when present
- Phage (with cluster) where this start called: Anon\_46 (A15), Bantam\_75 (DL), Battleship\_52 (A15), DatBoi\_73 (DL), JSwag\_50 (A15), MinecraftSteve\_52 (A15), Mollymur\_75 (DL), Remus\_51 (A15), Rosalind\_50 (A15), SpeedDemon\_770 (DL), Strosahl\_51 (A15), Switzerland\_51 (A15), Waits\_51 (A15),

Start 25:

- Found in 9 of 110 ( 8.2% ) of genes in pham
- Manual Annotations of this start: 7 of 93
- Called 88.9% of time when present
- Phage (with cluster) where this start called: Anthony\_44 (A20), Krueger\_4 (K6), Marshawn\_5 (K6), Shadow1\_3 (K6), Sunflower1121\_3 (K6), Syra333\_4 (K6), TClif\_4 (K6), Ximenita\_5 (K6),

Start 26:

- Found in 1 of 110 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 1 of 93
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Pharaoh\_43 (A12),

#### Start 27:

- Found in 32 of 110 ( 29.1% ) of genes in pham
- Manual Annotations of this start: 21 of 93
- Called 65.6% of time when present
- Phage (with cluster) where this start called: Bing\_31 (BI5), CherryBlossom\_30 (BI1), Chidiebere\_24 (DQ), Esketit\_30 (BI1), FidgetOrca\_30 (BI1), Hoshi\_30 (BI1), IceWarrior\_30 (BI1), Indigenous\_30 (BI1), Jaylociraptor\_30 (BI1), Maya\_30 (BI1), Meibysrarus\_30 (BI1), Namu\_30 (BI1), NoodlelyBoi\_26 (EC), OlympicHelado\_30 (BI1), PSonyx\_28 (singleton), Quhwah\_29 (EC), Rima\_30 (BI1), Spectropatronm\_30 (BI1), TaidaOne\_30 (BI1), TieDye\_29 (BI1), TonyStarch\_30 (BI1),

#### Start 28:

- Found in 41 of 110 ( 37.3% ) of genes in pham
- Manual Annotations of this start: 32 of 93
- Called 95.1% of time when present
- Phage (with cluster) where this start called: AgentM\_44 (A5), Aloki\_23 (DQ), Alone3\_74 (BS), Aragog\_44 (A5), BRock\_64 (BS), Benedict\_49 (A5), Chadwick\_49 (A5), ChisanaKitsune\_20 (DQ), Conspiracy\_45 (A5), Cuco\_45 (A5), Dublin\_45 (A5), FlyingTortilla\_23 (DQ), ForGetIt\_45 (A5), GiJojo\_63 (BS), Gray\_24 (DQ), Hanem\_24 (DQ), Jabiru\_47 (A5), Jovo\_45 (A5), Kabocha\_25 (DQ), Kudrefre\_102 (DU1), Lev2\_45 (A5), LuckySocke\_72 (BS), MarysWell\_45 (A5), Midas2\_45 (A5), ModicumRichard\_94 (DZ), Octobien14\_100 (DU1), Oogie\_23 (DQ), Pakusa\_23 (DQ), PetterN\_50 (A5), PickleBack\_45 (A5), ScarletRaider\_23 (DQ), Schomber\_23 (DQ), Scorpia\_50 (A5), Sephiroth\_99 (DU1), Syleon\_102 (DU1), Theia\_44 (A5), Tiger\_44 (A5), UBSmoodge\_25 (DQ), UnionJack\_47 (A5),

#### Start 29:

- Found in 5 of 110 ( 4.5% ) of genes in pham
- Manual Annotations of this start: 1 of 93
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bloom\_190 (FC), Mimi\_192 (FC), Patbob\_186 (FC), Racecar\_187 (FC), Talia1610\_189 (FC),

#### Start 30:

- Found in 6 of 110 ( 5.5% ) of genes in pham
- Manual Annotations of this start: 1 of 93
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Jace\_19 (singleton), JeanGrey\_138 (singleton),

### Summary by clusters:

There are 19 clusters represented in this pham: A15, A20, DL, BI5, AF, FC, A12, EC, singleton, T, A2, A5, K6, BS, A9, DU1, DZ, DQ, BI1,

Info for manual annotations of cluster A12:

- Start number 26 was manually annotated 1 time for cluster A12.

Info for manual annotations of cluster A15:

- Start number 24 was manually annotated 9 times for cluster A15.

Info for manual annotations of cluster A2:

- Start number 21 was manually annotated 5 times for cluster A2.

Info for manual annotations of cluster A20:

- Start number 25 was manually annotated 1 time for cluster A20.

Info for manual annotations of cluster A5:

- Start number 28 was manually annotated 19 times for cluster A5.

Info for manual annotations of cluster A9:

- Start number 21 was manually annotated 3 times for cluster A9.
- Start number 23 was manually annotated 1 time for cluster A9.

Info for manual annotations of cluster AF:

- Start number 20 was manually annotated 1 time for cluster AF.

Info for manual annotations of cluster B11:

- Start number 27 was manually annotated 16 times for cluster B11.

Info for manual annotations of cluster B15:

- Start number 27 was manually annotated 1 time for cluster B15.

Info for manual annotations of cluster BS:

- Start number 28 was manually annotated 4 times for cluster BS.

Info for manual annotations of cluster DL:

- Start number 19 was manually annotated 1 time for cluster DL.
- Start number 24 was manually annotated 4 times for cluster DL.

Info for manual annotations of cluster DQ:

- Start number 27 was manually annotated 1 time for cluster DQ.
- Start number 28 was manually annotated 5 times for cluster DQ.

Info for manual annotations of cluster DU1:

- Start number 28 was manually annotated 4 times for cluster DU1.

Info for manual annotations of cluster EC:

- Start number 27 was manually annotated 2 times for cluster EC.

Info for manual annotations of cluster FC:

- Start number 29 was manually annotated 1 time for cluster FC.

Info for manual annotations of cluster K6:

- Start number 25 was manually annotated 6 times for cluster K6.

Info for manual annotations of cluster T:

- Start number 22 was manually annotated 6 times for cluster T.

**Gene Information:**

Gene: 20ES\_51 Start: 32882, Stop: 32634, Start Num: 21

Candidate Starts for 20ES\_51:

(11, 32984), (12, 32972), (Start: 21 @32882 has 8 MA's), (37, 32792), (56, 32681),

Gene: AN3\_51 Start: 33253, Stop: 33005, Start Num: 21

Candidate Starts for AN3\_51:

(11, 33355), (12, 33343), (Start: 21 @33253 has 8 MA's), (37, 33163), (56, 33052),

Gene: AgentM\_44 Start: 34563, Stop: 34327, Start Num: 28

Candidate Starts for AgentM\_44:

(15, 34632), (Start: 28 @34563 has 32 MA's),

Gene: Alok\_i\_23 Start: 11841, Stop: 12056, Start Num: 28

Candidate Starts for Alok\_i\_23:

(17, 11784), (Start: 27 @11838 has 21 MA's), (Start: 28 @11841 has 32 MA's), (36, 11898), (43, 11931), (45, 11943), (46, 11946), (57, 12015),

Gene: Alone3\_74 Start: 28535, Stop: 28747, Start Num: 28

Candidate Starts for Alone3\_74:

(Start: 28 @28535 has 32 MA's), (43, 28625), (49, 28652), (53, 28694), (55, 28706), (56, 28709),

Gene: Anon\_46 Start: 30067, Stop: 29819, Start Num: 24

Candidate Starts for Anon\_46:

(Start: 24 @30067 has 13 MA's), (46, 29935), (56, 29869),

Gene: Anthony\_44 Start: 30206, Stop: 29964, Start Num: 25

Candidate Starts for Anthony\_44:

(Start: 25 @30206 has 7 MA's), (33, 30173), (40, 30113), (45, 30086), (56, 30017),

Gene: Aragog\_44 Start: 34583, Stop: 34347, Start Num: 28

Candidate Starts for Aragog\_44:

(15, 34652), (Start: 28 @34583 has 32 MA's),

Gene: BRock\_64 Start: 24495, Stop: 24707, Start Num: 28

Candidate Starts for BRock\_64:

(Start: 28 @24495 has 32 MA's), (43, 24585), (51, 24639), (55, 24666), (56, 24669),

Gene: Bantam\_75 Start: 53471, Stop: 53229, Start Num: 24

Candidate Starts for Bantam\_75:

(Start: 24 @53471 has 13 MA's), (Start: 30 @53450 has 1 MA's), (50, 53327), (56, 53276),

Gene: Battleship\_52 Start: 31061, Stop: 30813, Start Num: 24

Candidate Starts for Battleship\_52:

(Start: 24 @31061 has 13 MA's), (46, 30929), (56, 30863),

Gene: Benedict\_49 Start: 34952, Stop: 34716, Start Num: 28

Candidate Starts for Benedict\_49:

(Start: 28 @34952 has 32 MA's),

Gene: BengiVuitton\_50 Start: 32835, Stop: 32587, Start Num: 21

Candidate Starts for BengiVuitton\_50:

(11, 32937), (12, 32925), (Start: 21 @32835 has 8 MA's), (37, 32745), (40, 32730), (56, 32634),

Gene: Bernal13\_1 Start: 89, Stop: 325, Start Num: 22

Candidate Starts for Bernal13\_1:

(13, 8), (16, 47), (Start: 22 @89 has 6 MA's), (Start: 24 @92 has 13 MA's), (40, 191), (41, 197), (42, 203), (56, 287),

Gene: Bing\_31 Start: 25537, Stop: 25779, Start Num: 27

Candidate Starts for Bing\_31:

(Start: 27 @25537 has 21 MA's), (57, 25729), (58, 25747),

Gene: Bloom\_190 Start: 124505, Stop: 124735, Start Num: 29

Candidate Starts for Bloom\_190:

(Start: 29 @124505 has 1 MA's), (57, 124682),

Gene: CRB1\_52 Start: 33225, Stop: 32989, Start Num: 21

Candidate Starts for CRB1\_52:

(11, 33327), (12, 33315), (Start: 21 @33225 has 8 MA's), (37, 33135), (56, 33024),

Gene: Chadwick\_49 Start: 34763, Stop: 34527, Start Num: 28

Candidate Starts for Chadwick\_49:

(15, 34832), (Start: 28 @34763 has 32 MA's), (47, 34640),

Gene: CherryBlossom\_30 Start: 25644, Stop: 25883, Start Num: 27

Candidate Starts for CherryBlossom\_30:

(Start: 27 @25644 has 21 MA's), (51, 25803), (57, 25833),

Gene: Chidiebere\_24 Start: 11838, Stop: 12056, Start Num: 27

Candidate Starts for Chidiebere\_24:

(17, 11784), (Start: 27 @11838 has 21 MA's), (Start: 28 @11841 has 32 MA's), (36, 11898), (43, 11931), (46, 11946), (54, 12000), (57, 12015),

Gene: ChisanaKitsune\_20 Start: 10536, Stop: 10751, Start Num: 28

Candidate Starts for ChisanaKitsune\_20:

(Start: 27 @10533 has 21 MA's), (Start: 28 @10536 has 32 MA's), (36, 10593), (43, 10626), (46, 10641), (54, 10695), (57, 10710),

Gene: Conspiracy\_45 Start: 34805, Stop: 34569, Start Num: 28

Candidate Starts for Conspiracy\_45:

(15, 34874), (Start: 28 @34805 has 32 MA's),

Gene: Cuco\_45 Start: 34838, Stop: 34602, Start Num: 28

Candidate Starts for Cuco\_45:

(15, 34907), (Start: 28 @34838 has 32 MA's),

Gene: Daredevil\_66 Start: 49516, Stop: 49250, Start Num: 19

Candidate Starts for Daredevil\_66:

(18, 49531), (Start: 19 @49516 has 1 MA's), (39, 49402), (46, 49369), (47, 49366), (56, 49303), (57, 49300),

Gene: Darrell\_49 Start: 32937, Stop: 32701, Start Num: 21

Candidate Starts for Darrell\_49:

(11, 33039), (Start: 21 @32937 has 8 MA's), (31, 32913), (56, 32745),



Gene: DatBoi\_73 Start: 53464, Stop: 53222, Start Num: 24  
Candidate Starts for DatBoi\_73:  
(Start: 24 @53464 has 13 MA's), (Start: 30 @53443 has 1 MA's), (56, 53269),

Gene: Deloris\_49 Start: 32504, Stop: 32256, Start Num: 21  
Candidate Starts for Deloris\_49:  
(11, 32606), (12, 32594), (Start: 21 @32504 has 8 MA's), (37, 32414), (40, 32399), (56, 32303),

Gene: Dublin\_45 Start: 34974, Stop: 34738, Start Num: 28  
Candidate Starts for Dublin\_45:  
(Start: 28 @34974 has 32 MA's),

Gene: Esketit\_30 Start: 25627, Stop: 25866, Start Num: 27  
Candidate Starts for Esketit\_30:  
(Start: 27 @25627 has 21 MA's), (51, 25786), (57, 25816),

Gene: FidgetOrca\_30 Start: 25633, Stop: 25872, Start Num: 27  
Candidate Starts for FidgetOrca\_30:  
(Start: 27 @25633 has 21 MA's), (51, 25792), (57, 25822),

Gene: First\_0050 Start: 32758, Stop: 32510, Start Num: 21  
Candidate Starts for First\_0050:  
(11, 32860), (12, 32848), (Start: 21 @32758 has 8 MA's), (37, 32668), (56, 32557),

Gene: FlyingTortilla\_23 Start: 12855, Stop: 13073, Start Num: 28  
Candidate Starts for FlyingTortilla\_23:  
(Start: 27 @12852 has 21 MA's), (Start: 28 @12855 has 32 MA's), (52, 13008), (55, 13026), (57, 13032),

Gene: ForGetIt\_45 Start: 34830, Stop: 34594, Start Num: 28  
Candidate Starts for ForGetIt\_45:  
(15, 34899), (Start: 28 @34830 has 32 MA's),

Gene: GiJojo\_63 Start: 26714, Stop: 26926, Start Num: 28  
Candidate Starts for GiJojo\_63:  
(Start: 28 @26714 has 32 MA's), (43, 26804), (51, 26858), (55, 26885), (56, 26888),

Gene: Gray\_24 Start: 11841, Stop: 12056, Start Num: 28  
Candidate Starts for Gray\_24:  
(17, 11784), (Start: 27 @11838 has 21 MA's), (Start: 28 @11841 has 32 MA's), (36, 11898), (43, 11931), (45, 11943), (46, 11946), (57, 12015),

Gene: Hanem\_24 Start: 11841, Stop: 12056, Start Num: 28  
Candidate Starts for Hanem\_24:  
(17, 11784), (Start: 27 @11838 has 21 MA's), (Start: 28 @11841 has 32 MA's), (36, 11898), (43, 11931), (45, 11943), (46, 11946), (57, 12015),

Gene: Hoshi\_30 Start: 25627, Stop: 25866, Start Num: 27  
Candidate Starts for Hoshi\_30:  
(Start: 27 @25627 has 21 MA's), (51, 25786), (57, 25816),

Gene: Ibrahim\_1 Start: 89, Stop: 325, Start Num: 22

Candidate Starts for Ibrahim\_1:

(13, 8), (16, 47), (Start: 22 @89 has 6 MA's), (Start: 24 @92 has 13 MA's), (40, 191), (41, 197), (42, 203), (56, 287),

Gene: IceWarrior\_30 Start: 25627, Stop: 25866, Start Num: 27

Candidate Starts for IceWarrior\_30:

(Start: 27 @25627 has 21 MA's), (51, 25786), (57, 25816),

Gene: Indigenous\_30 Start: 25627, Stop: 25866, Start Num: 27

Candidate Starts for Indigenous\_30:

(Start: 27 @25627 has 21 MA's), (51, 25786), (57, 25816),

Gene: JSwag\_50 Start: 30801, Stop: 30553, Start Num: 24

Candidate Starts for JSwag\_50:

(Start: 24 @30801 has 13 MA's), (46, 30669), (56, 30603),

Gene: Jabiru\_47 Start: 34807, Stop: 34571, Start Num: 28

Candidate Starts for Jabiru\_47:

(15, 34876), (Start: 28 @34807 has 32 MA's), (47, 34684),

Gene: Jace\_19 Start: 17315, Stop: 17536, Start Num: 30

Candidate Starts for Jace\_19:

(1, 16346), (2, 16361), (3, 16439), (4, 16571), (5, 16844), (6, 17003), (7, 17018), (Start: 30 @17315 has 1 MA's), (34, 17357), (40, 17390), (50, 17435), (56, 17486),

Gene: Jaylociraptor\_30 Start: 25627, Stop: 25866, Start Num: 27

Candidate Starts for Jaylociraptor\_30:

(Start: 27 @25627 has 21 MA's), (51, 25786), (57, 25816),

Gene: JeanGrey\_138 Start: 105656, Stop: 105889, Start Num: 30

Candidate Starts for JeanGrey\_138:

(Start: 30 @105656 has 1 MA's), (56, 105827),

Gene: Jovo\_45 Start: 35086, Stop: 34850, Start Num: 28

Candidate Starts for Jovo\_45:

(15, 35155), (Start: 28 @35086 has 32 MA's),

Gene: Kabocha\_25 Start: 12654, Stop: 12869, Start Num: 28

Candidate Starts for Kabocha\_25:

(17, 12597), (Start: 27 @12651 has 21 MA's), (Start: 28 @12654 has 32 MA's), (36, 12711), (43, 12744), (45, 12756), (46, 12759), (57, 12828),

Gene: Krueger\_4 Start: 823, Stop: 1062, Start Num: 25

Candidate Starts for Krueger\_4:

(Start: 25 @823 has 7 MA's), (56, 1015),

Gene: Kudfre\_102 Start: 58639, Stop: 58851, Start Num: 28

Candidate Starts for Kudfre\_102:

(Start: 28 @58639 has 32 MA's), (42, 58729), (47, 58750), (56, 58813), (59, 58843),

Gene: LadyBird\_53 Start: 33193, Stop: 32945, Start Num: 21

Candidate Starts for LadyBird\_53:

(11, 33295), (12, 33283), (Start: 21 @33193 has 8 MA's), (37, 33103), (56, 32992),

Gene: Lev2\_45 Start: 34718, Stop: 34482, Start Num: 28

Candidate Starts for Lev2\_45:

(15, 34787), (Start: 28 @34718 has 32 MA's),

Gene: LoneWolf\_49 Start: 32307, Stop: 32071, Start Num: 23

Candidate Starts for LoneWolf\_49:

(10, 32427), (11, 32415), (Start: 23 @32307 has 1 MA's), (46, 32184), (56, 32118),

Gene: LuckySocke\_72 Start: 27277, Stop: 27489, Start Num: 28

Candidate Starts for LuckySocke\_72:

(Start: 28 @27277 has 32 MA's), (43, 27367), (49, 27394), (53, 27436), (55, 27448), (56, 27451),

Gene: Marshawn\_5 Start: 936, Stop: 1178, Start Num: 25

Candidate Starts for Marshawn\_5:

(Start: 25 @936 has 7 MA's), (37, 1017), (56, 1128),

Gene: MarysWell\_45 Start: 35217, Stop: 34981, Start Num: 28

Candidate Starts for MarysWell\_45:

(15, 35286), (Start: 28 @35217 has 32 MA's),

Gene: Maya\_30 Start: 25641, Stop: 25880, Start Num: 27

Candidate Starts for Maya\_30:

(Start: 27 @25641 has 21 MA's), (51, 25800), (57, 25830),

Gene: Meibysrarus\_30 Start: 25627, Stop: 25866, Start Num: 27

Candidate Starts for Meibysrarus\_30:

(Start: 27 @25627 has 21 MA's), (51, 25786), (57, 25816),

Gene: Midas2\_45 Start: 34966, Stop: 34730, Start Num: 28

Candidate Starts for Midas2\_45:

(15, 35035), (Start: 28 @34966 has 32 MA's),

Gene: Mimi\_192 Start: 124218, Stop: 124448, Start Num: 29

Candidate Starts for Mimi\_192:

(Start: 29 @124218 has 1 MA's), (57, 124395),

Gene: MinecraftSteve\_52 Start: 31065, Stop: 30817, Start Num: 24

Candidate Starts for MinecraftSteve\_52:

(Start: 24 @31065 has 13 MA's), (46, 30933), (56, 30867),

Gene: ModicumRichard\_94 Start: 55434, Stop: 55703, Start Num: 28

Candidate Starts for ModicumRichard\_94:

(Start: 28 @55434 has 32 MA's), (48, 55554), (50, 55560), (56, 55611), (57, 55614), (63, 55659),

Gene: Mollymur\_75 Start: 54003, Stop: 53758, Start Num: 24

Candidate Starts for Mollymur\_75:

(Start: 24 @54003 has 13 MA's), (Start: 30 @53982 has 1 MA's), (56, 53808),

Gene: Nairb\_1 Start: 89, Stop: 325, Start Num: 22

Candidate Starts for Nairb\_1:

(13, 8), (16, 47), (Start: 22 @89 has 6 MA's), (Start: 24 @92 has 13 MA's), (40, 191), (41, 197), (42, 203), (56, 287),

Gene: Namo\_30 Start: 25633, Stop: 25872, Start Num: 27  
Candidate Starts for Namo\_30:  
(Start: 27 @25633 has 21 MA's), (51, 25792), (57, 25822),

Gene: NoodlelyBoi\_26 Start: 13691, Stop: 13933, Start Num: 27  
Candidate Starts for NoodlelyBoi\_26:  
(Start: 27 @13691 has 21 MA's), (38, 13772), (52, 13859), (57, 13883),

Gene: Octobien14\_100 Start: 58045, Stop: 58257, Start Num: 28  
Candidate Starts for Octobien14\_100:  
(Start: 28 @58045 has 32 MA's), (42, 58135), (47, 58156), (56, 58219), (60, 58252),

Gene: OlympicHelado\_30 Start: 25633, Stop: 25872, Start Num: 27  
Candidate Starts for OlympicHelado\_30:  
(Start: 27 @25633 has 21 MA's), (51, 25792), (57, 25822),

Gene: Oogie\_23 Start: 11493, Stop: 11708, Start Num: 28  
Candidate Starts for Oogie\_23:  
(Start: 27 @11490 has 21 MA's), (Start: 28 @11493 has 32 MA's), (36, 11550), (43, 11583), (46, 11598), (57, 11667),

Gene: PSonyx\_28 Start: 27311, Stop: 27562, Start Num: 27  
Candidate Starts for PSonyx\_28:  
(Start: 27 @27311 has 21 MA's), (Start: 28 @27314 has 32 MA's), (35, 27371), (46, 27431), (47, 27434), (49, 27443), (50, 27446), (54, 27485), (57, 27500), (61, 27536), (62, 27539),

Gene: Pakusa\_23 Start: 11583, Stop: 11798, Start Num: 28  
Candidate Starts for Pakusa\_23:  
(17, 11526), (Start: 27 @11580 has 21 MA's), (Start: 28 @11583 has 32 MA's), (36, 11640), (43, 11673), (45, 11685), (46, 11688), (57, 11757),

Gene: Patbob\_186 Start: 125330, Stop: 125560, Start Num: 29  
Candidate Starts for Patbob\_186:  
(Start: 29 @125330 has 1 MA's), (57, 125507),

Gene: PetterN\_50 Start: 34931, Stop: 34695, Start Num: 28  
Candidate Starts for PetterN\_50:  
(15, 35000), (Start: 28 @34931 has 32 MA's),

Gene: Pharaoh\_43 Start: 32085, Stop: 31876, Start Num: 26  
Candidate Starts for Pharaoh\_43:  
(11, 32193), (12, 32181), (Start: 26 @32085 has 1 MA's), (40, 32010), (47, 31977), (56, 31914),

Gene: PickleBack\_45 Start: 34710, Stop: 34474, Start Num: 28  
Candidate Starts for PickleBack\_45:  
(15, 34779), (Start: 28 @34710 has 32 MA's),

Gene: Quhwah\_29 Start: 14012, Stop: 14254, Start Num: 27  
Candidate Starts for Quhwah\_29:  
(9, 13787), (Start: 27 @14012 has 21 MA's), (50, 14150), (52, 14180), (57, 14204),

Gene: Racecar\_187 Start: 125098, Stop: 125328, Start Num: 29

Candidate Starts for Racecar\_187:  
(Start: 29 @125098 has 1 MA's), (57, 125275),

Gene: Rahalelujah\_48 Start: 31854, Stop: 31618, Start Num: 21  
Candidate Starts for Rahalelujah\_48:  
(8, 32055), (11, 31956), (Start: 21 @31854 has 8 MA's), (31, 31830), (56, 31662),

Gene: Remus\_51 Start: 30778, Stop: 30533, Start Num: 24  
Candidate Starts for Remus\_51:  
(Start: 24 @30778 has 13 MA's), (32, 30751), (44, 30661), (56, 30583),

Gene: Rima\_30 Start: 25633, Stop: 25872, Start Num: 27  
Candidate Starts for Rima\_30:  
(Start: 27 @25633 has 21 MA's), (51, 25792), (57, 25822),

Gene: RonRayGun\_1 Start: 89, Stop: 325, Start Num: 22  
Candidate Starts for RonRayGun\_1:  
(13, 8), (16, 47), (Start: 22 @89 has 6 MA's), (Start: 24 @92 has 13 MA's), (40, 191), (41, 197), (42, 203), (56, 287),

Gene: Rosalind\_50 Start: 30984, Stop: 30736, Start Num: 24  
Candidate Starts for Rosalind\_50:  
(Start: 24 @30984 has 13 MA's), (46, 30852), (56, 30786),

Gene: ScarletRaider\_23 Start: 12882, Stop: 13100, Start Num: 28  
Candidate Starts for ScarletRaider\_23:  
(Start: 27 @12879 has 21 MA's), (Start: 28 @12882 has 32 MA's), (52, 13035), (55, 13053), (57, 13059),

Gene: Schomber\_23 Start: 11591, Stop: 11806, Start Num: 28  
Candidate Starts for Schomber\_23:  
(17, 11534), (Start: 27 @11588 has 21 MA's), (Start: 28 @11591 has 32 MA's), (36, 11648), (43, 11681), (46, 11696), (54, 11750), (57, 11765),

Gene: Scorpia\_50 Start: 35017, Stop: 34781, Start Num: 28  
Candidate Starts for Scorpia\_50:  
(15, 35086), (Start: 28 @35017 has 32 MA's), (47, 34894),

Gene: Sephiroth\_99 Start: 58611, Stop: 58823, Start Num: 28  
Candidate Starts for Sephiroth\_99:  
(Start: 28 @58611 has 32 MA's), (42, 58701), (43, 58704), (47, 58722), (56, 58785),

Gene: Shadow1\_3 Start: 728, Stop: 967, Start Num: 25  
Candidate Starts for Shadow1\_3:  
(Start: 25 @728 has 7 MA's), (56, 920),

Gene: Sparky\_92 Start: 62308, Stop: 62565, Start Num: 20  
Candidate Starts for Sparky\_92:  
(14, 62263), (Start: 20 @62308 has 1 MA's), (Start: 25 @62326 has 7 MA's), (55, 62515), (56, 62518),

Gene: Spectropatronm\_30 Start: 25627, Stop: 25866, Start Num: 27  
Candidate Starts for Spectropatronm\_30:  
(Start: 27 @25627 has 21 MA's), (51, 25786), (57, 25816),

Gene: SpeedDemon\_770 Start: 55702, Stop: 55460, Start Num: 24  
Candidate Starts for SpeedDemon\_770:  
(Start: 24 @55702 has 13 MA's), (Start: 30 @55681 has 1 MA's), (50, 55558), (56, 55507),

Gene: Strosahl\_51 Start: 30778, Stop: 30533, Start Num: 24  
Candidate Starts for Strosahl\_51:  
(Start: 24 @30778 has 13 MA's), (32, 30751), (44, 30661), (56, 30583),

Gene: Sunflower1121\_3 Start: 727, Stop: 966, Start Num: 25  
Candidate Starts for Sunflower1121\_3:  
(Start: 25 @727 has 7 MA's), (56, 919),

Gene: Switzerland\_51 Start: 31164, Stop: 30916, Start Num: 24  
Candidate Starts for Switzerland\_51:  
(Start: 24 @31164 has 13 MA's), (46, 31032), (56, 30966),

Gene: Syleon\_102 Start: 58815, Stop: 59036, Start Num: 28  
Candidate Starts for Syleon\_102:  
(Start: 28 @58815 has 32 MA's), (42, 58905), (47, 58926), (56, 58989),

Gene: Syra333\_4 Start: 832, Stop: 1071, Start Num: 25  
Candidate Starts for Syra333\_4:  
(Start: 25 @832 has 7 MA's), (56, 1024),

Gene: TClif\_4 Start: 786, Stop: 1025, Start Num: 25  
Candidate Starts for TClif\_4:  
(Start: 25 @786 has 7 MA's), (55, 975), (56, 978),

Gene: TaidaOne\_30 Start: 26275, Stop: 26514, Start Num: 27  
Candidate Starts for TaidaOne\_30:  
(Start: 27 @26275 has 21 MA's), (51, 26434), (57, 26464),

Gene: Talia1610\_189 Start: 124515, Stop: 124745, Start Num: 29  
Candidate Starts for Talia1610\_189:  
(Start: 29 @124515 has 1 MA's), (57, 124692),

Gene: Theia\_44 Start: 35195, Stop: 34959, Start Num: 28  
Candidate Starts for Theia\_44:  
(Start: 28 @35195 has 32 MA's),

Gene: TieDye\_29 Start: 25319, Stop: 25558, Start Num: 27  
Candidate Starts for TieDye\_29:  
(Start: 27 @25319 has 21 MA's), (51, 25478), (57, 25508),

Gene: Tiger\_44 Start: 34384, Stop: 34148, Start Num: 28  
Candidate Starts for Tiger\_44:  
(15, 34453), (Start: 28 @34384 has 32 MA's),

Gene: Toaka\_48 Start: 32116, Stop: 31880, Start Num: 21  
Candidate Starts for Toaka\_48:  
(11, 32218), (Start: 21 @32116 has 8 MA's), (40, 32017), (56, 31921),

Gene: TonyStarch\_30 Start: 25633, Stop: 25872, Start Num: 27

Candidate Starts for TonyStarch\_30:

(Start: 27 @25633 has 21 MA's), (51, 25792), (57, 25822),

Gene: UBSmoodge\_25 Start: 13351, Stop: 13569, Start Num: 28

Candidate Starts for UBSmoodge\_25:

(Start: 27 @13348 has 21 MA's), (Start: 28 @13351 has 32 MA's), (36, 13411), (52, 13504), (55, 13522), (57, 13528),

Gene: UnionJack\_47 Start: 34507, Stop: 34271, Start Num: 28

Candidate Starts for UnionJack\_47:

(15, 34576), (Start: 28 @34507 has 32 MA's),

Gene: VA6\_49 Start: 32727, Stop: 32479, Start Num: 21

Candidate Starts for VA6\_49:

(11, 32829), (12, 32817), (Start: 21 @32727 has 8 MA's), (37, 32637), (56, 32526),

Gene: Vanisoa\_48 Start: 33142, Stop: 32909, Start Num: 21

Candidate Starts for Vanisoa\_48:

(8, 33343), (12, 33232), (Start: 21 @33142 has 8 MA's), (40, 33043), (49, 33001), (56, 32947),

Gene: Waits\_51 Start: 30953, Stop: 30705, Start Num: 24

Candidate Starts for Waits\_51:

(Start: 24 @30953 has 13 MA's), (46, 30821), (56, 30755),

Gene: Whitty\_1 Start: 89, Stop: 325, Start Num: 22

Candidate Starts for Whitty\_1:

(13, 8), (16, 47), (Start: 22 @89 has 6 MA's), (Start: 24 @92 has 13 MA's), (40, 191), (41, 197), (42, 203), (56, 287),

Gene: Ximenita\_5 Start: 995, Stop: 1234, Start Num: 25

Candidate Starts for Ximenita\_5:

(Start: 25 @995 has 7 MA's), (56, 1187),

Gene: ZenTime222\_1 Start: 89, Stop: 325, Start Num: 22

Candidate Starts for ZenTime222\_1:

(13, 8), (16, 47), (Start: 22 @89 has 6 MA's), (Start: 24 @92 has 13 MA's), (40, 191), (41, 197), (42, 203), (56, 287),